Case 3479

Cuvieronius Osborn, 1923 (Mammalia, Proboscidea): proposed conservation

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Abstract. The purpose of this application, under Articles 68 and 75 of the Code, is to conserve the generic name *Cuvieronius* Osborn, 1923, long and widely applied to extinct South American gomphotheriid proboscideans, by setting aside all previous type species fixations and designating *Mastotherium hyodon* Fischer, 1814 as the type species of *Cuvieronius* and by designating a neotype for that species. Because *M. hyodon* has long and universal (though incorrect) usage as the type species of *Cuvieronius* and because the type specimen of *M. hyodon* is unidentifiable, the type species and neotype designations are proposed to promote the stability and universality of nomenclature.

Keywords. Nomenclature; taxonomy; Mammalia; Proboscidea; GOMPHOTHERIIDAE; Brazil; *Cuvieronius*; *Cordillerion*; *Haplomastodon*; *Mastotherium hyodon*; *Cuvieronius tarijensis*; South America; Ecuador; Chile; Argentina.

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1. Cuvier (1806, p. 413) described the first gomphothere fossils from South America using the term 'mastodonte des cordilières' for an upper molar from Ecuador and 'mastodonte humboldien [sic]' for an incomplete lower molar or deciduous premolar from Chile. Cuvier (1824, p. 527) later introduced the Latinised names *Mastodon andium* and *Mastodon humboldtii* for these teeth.

2. Fischer (1814, p. 341) had already coined the binomen *Mastotherium hyodon* for the 'mastodonte des cordilières' of Cuvier (1806) and the binomen *Mastotherium humboldtii* for the 'mastodonte humboldien' [sic] of Cuvier (1806). Thus, the species name *M. hyodon*, as the first Code-compliant binomen proposed, has priority over *Mastodon andium* Cuvier, 1824.

3. In the nineteenth and early twentieth centuries, most palaeontologists envisioned two taxa of extinct South American proboscideans, one from the uplands (Andean Cordillera) and the other from the lowlands (especially the Argentine pampas and Brazilian coastal lowlands). The name *Mastodon andium* was applied to the Cordilleran species, whereas the name *Mastodon humboldtii* came to be applied to the lowland species (e.g. Nordenskiöld, 1903; Boule & Thevenin, 1920).

4. Osborn (1923, 1926) named two genera to match this distinction. He (1923, p. 1) named the lowland species *Cuvieronius* (type species *Mastotherium humboldtii* Fischer, 1814, by original designation, though Osborn erroneously attributed the species name to Cuvier, 1824) and (1926, p. 15) the upland species *Cordillerion* (type species *Mastodon andium* Cuvier, 1824, by original designation).

5. Beginning with Cabrera (1929), all workers agreed that the specimens described by Cuvier (1806), for which Osborn proposed two generic names, are teeth of one taxon (e.g. Hoffstetter, 1950, 1952; Simpson & Paula Couto, 1957; Ficcarelli et al., 1995; Ferretti, 2008; Lucas, 2008).

6. Cabrera (1929, p. 69) considered *Cordillerion* Osborn, 1926 to be a junior subjective synonym of *Cuvieronius* Osborn, 1923, and all subsequent authors (except Osborn, 1936) have agreed with him on this (e.g. Simpson, 1945; Hoffstetter, 1950, 1952, 1955; Simpson & Paula Couto, 1955, 1957; Parodi Bustos, 1962; Tobien, 1973; Laurito, 1988; Casamiquela et al., 1996; Shoshani & Tassy, 1996; McKenna & Bell, 1997; Lambert & Shoshani, 1998; Frassinetti & Alberdi, 2000; Alberdi et al., 2002, 2004; Prado et al., 2002, 2003, 2005; Ferretti, 2008; Lucas, 2008). However, Cabrera (1929, pp. 80–82) applied the generic name *Cuvieronius* to the upland gomphothere, by erroneously naming *Mastotherium hyodon* as its type species, even though he acknowledged the original type species designations of Osborn (1923, 1926). Cabrera (1929, p. 81) did this because he regarded *Mastotherium hyodon* as a senior synonym of both *Mastodon andium* Cuvier, 1824 and *Mastodon humboldtii* (Fischer, 1814). Accordingly, he used the genus-group name *Cuvieronius*, stating *Mastotherium hyodon* to be its type species, even though he acknowledged the original type species designation of *Mastodon humboldtii* (Fischer, 1814) proposed by Osborn (1923).

7. Cabrera (1929) thus chose the oldest named species (*Mastotherium hyodon*) as the type species of *Cuvieronius* and thereby reassigned the designated type species of *Cordillerion* (*M. hyodon*) to the genus *Cuvieronius* as its type species, even though *M. humboldtii* was originally designated as the type species of *Cuvieronius*. Although this is a clear violation of Article 68.2 of the Code, subsequent authors accepted Cabrera's type species assignments (e.g. Hoffstetter, 1950, 1952; Simpson & Paula Couto, 1957; Parodi Bustos, 1962; Tobien, 1973; Laurito Mora, 1988; Lucas et al., 1997; Lambert & Shoshani, 1998; Lucas et al., 1999, 2000; Frassinetti & Alberdi, 2000; Montellano-Ballesteros, 2002; Prado et al., 2002, 2003, 2005; Ferretti, 2008; Lucas, 2008). The authoritative works of Hoffstetter (1952) and Simpson & Paula Couto (1957) may be considered particularly influential in gaining universal acceptance of this nomenclatural error.

8. The holotype tooth of *Mastotherium hyodon* is MNHN (Musée National d'Histoire Naturelle, Paris) AC 1738 and was photographically illustrated by Ficcarelli et al. (1995, pl. 89, fig. 5). It is considered to have been collected from the Cangahua deposits near Imbabura Volcano in Ecuador. The holotype tooth of *Mastodon humboldtii* is MNHN AC 1743 and was collected in either Chile or Ecuador near Concepcion. These kinds of cheek teeth are very similar in *Cuvieronius* Osborn, 1923 and *Haplomastodon* Hoffstetter, 1950, so the holotype teeth of *M. hyodon* and of *M. humboldtii* are not identifiable to genus level (e.g. Simpson & Paula Couto, 1957; Ficcarelli et al., 1995; Lucas, 2008). Indeed, palaeontologists working on South American proboscidean fossils have long regarded only one species of *Cuvieronius* as valid (*C. hyodon*) and one species of *Haplomastodon* as valid (*H. waringi*) and distinguish these species from each other by characteristics of the skull and tusks, not by the cheek teeth, which cannot be identified to species or even genus level when found isolated (see references cited under paragraph 7 above).

9. Ficcarelli et al. (1993) documented new finds of *Haplomastodon* from Ecuador. Based on these fossils, Ficcarelli et al. (1995) argued that the holotype upper second

molar of *Mastotherium hyodon*, which is from Ecuador, is likely a molar of *Haplomastodon*, simply because no fossils identifiable as *Cuvieronius* have been found in the Cangahua deposits of Ecuador, which is the likely source of the holotype tooth of *M. hyodon*.

10. Recognising the problematic taxonomic position of the holotype molar of *Mastotherium hyodon* (it cannot be identified as either *Cuvieronius* or *Haplomastodon*, and its provenance actually suggests it is the latter), Ficcarelli et al. (1995, p. 753) proposed to 'revive the term *tarijensis* [a nomen nudum in Ameghino, 1902]' and to designate a specimen from the Tarija, Bolivia, gomphothere sample described originally by Boule & Thevenin (1920) as a holotype. They thus chose a skull and mandible (MNHN TAR 1270, originally illustrated by Boule & Thevenin,1920, pls. 1–3) from Tarija as the holotype of a new species, *Cuvieronius tarijensis*, which they claimed was the first species of South American *Cuvieronius* based on an identifiable holotype. Ficcarelli et al. (1995) thus recommended abandoning the name *C. hyodon* as a nomen dubium.

11. Ameghino (1902, p. 2), in a table, had listed *Mastodon tarijensis* as a taxon from Tarija, Bolivia, with no description given. Hoffstetter (1952, p. 187) correctly regarded this name as a nomen nudum, a point also stressed by Prado et al. (2003, 2005), who considered *Cuvieronius tarijensis* Ficcarelli et al., 1995 (p. 747) a synonym of *Cuvieronius hyodon*. However, the fact that Ameghino (1902) introduced the species name *tarijensis* as a nomen nudum does not affect its availability, so Ficcarelli et al. (1995) did name a new species of *Cuvieronius*, *C. tarijensis*.

12. The solution to the nomenclatural problems of *Cuvieronius* and its type species proposed by Ficcarelli et al. (1995) upsets the stability and universality of nomenclature. It requires that a century of usage of *Cuvieronius hyodon* be abandoned by referring all South American *Cuvieronius* to *C. tarijensis*.

13. Instead, in accordance with Articles 68 and 75 of the Code, I propose a solution to the nomenclatural problems that surround *Cuvieronius* and its type species that promotes the stability and universality of nomenclature: designate *Mastotherium hyodon* Fischer, 1814 the type species of *Cuvieronius* and designate as neotype of *M. hyodon* the skull and lower jaw from Tarija, Bolivia, originally described and illustrated by Boule & Thevenin (1920, pls. 1–3): MNHN TAR 1270.

14. The International Commission on Zoological Nomenclature is accordingly asked:

(1) to use its plenary power:
  (a) to set aside all previous type species fixations for *Cuvieronius* Osborn, 1923 and to designate *Mastotherium hyodon* Fischer, 1814 as the type species;
  (b) to designate the skull and lower jaw from Tarija, Bolivia originally described and illustrated by Boule and Thevenin (1920, pls. 1–3): MNHN TAR 1270 as neotype of *Mastotherium hyodon*;
(2) to place on the Official List of Generic Names in Zoology the name *Cuvieronius* Osborn, 1923 (gender: masculine), type species *Mastotherium hyodon* Fischer, 1814, as ruled in (1)(a) above;
(3) to place on the Official List of Specific Names in Zoology the name *hyodon*, as published in the binomen *Mastotherium hyodon* Fischer, 1814 (specific name of the type species of *Cuvieronius* Osborn, 1923) and as defined by the neotype designated in (1)(b) above.

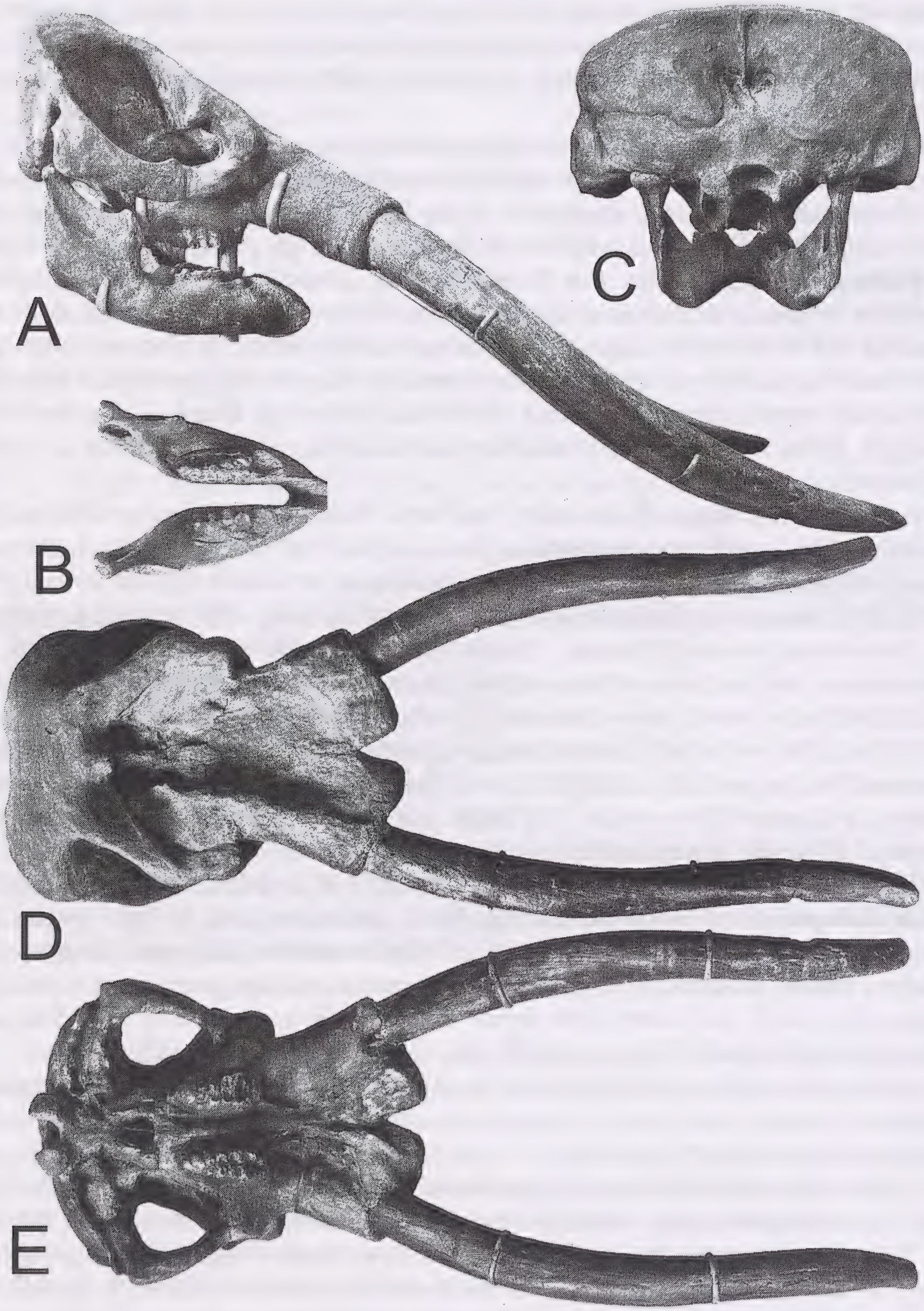

Fig. 1. MNHN (Musée National d'Histoire Naturelle, Paris) TAR 1270, skull and lower jaw from Tarija, Bolivia, proposed as neotype of *Mastotherium hyodon* Fischer, 1814. A, Right lateral view of skull and lower jaw. B, Occlusal view of lower jaw. C, Occipital view of skull and lower jaw. D, Dorsal view of skull. E, Ventral view of skull. For scale, maximum length of skull (including tusks) = 210 cm. Modified from Boule & Thevenin (1920, pls. 1–3).

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